Perspective: Department of Energy

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The definition of "environmental security" has recently been, and will continue to be, a subject of interest to government leaders. This interest is founded on compelling evidence of the relationships between environmental problems, human health concerns, and economic and political instability.

While it is useful to plow this ground and to develop a greater understanding of the real consequences of environmental degradation, it is not necessary for all interested parties to have exactly the same definition of environmental security.

The unique perspectives of the individuals and organizations engaged in addressing critical environmental and security concerns will necessarily color that person's or group's definition. Further, the definition of environmental security may vary from region to region and may encompass a series of problems or stresses that stretch across a time continuum. Some environmental security issues are of immediate concern, while others are mid- or long-term in scope.

What is essential, however, is that we agree on the need to *consider the environment a key component of regional and national security* as we forge a vision for U.S. engagement in the world, and that we use this principle to create receptivity for the democratic institutions needed for a peaceful globe.

Although we are in the early stages of formulating a U.S. vision for defining and dealing with the critical intersection of environmental and security concerns, environmental conditions have long been a factor in regional and even global stability. Consider the fact that throughout history, most armed conflicts have involved territorial claims and disputes, particularly over territory that affords a plentiful water supply, arable land, and ownership of minerals and precious metals. In the new, post–Cold War world order that is emerging, we are again shifting our focus to environmental conditions that affect the quality of life and potential for prosperity worldwide, namely, food, fuel, and water, and people's health and safety. It seems as though everything old is new again.

The Clinton administration's cognizance of the important connection between environmental conditions and U.S. security is evident in both domestic and foreign policies. Domestic military base cleanup, the remediation of radioactive waste, and clean air, water, and land programs are strongly supported. The White House also recognizes the importance of environmental stresses in the global picture. The 1996 National Security Science and Technology Strategy, published by the White House Office of Science and Technology Policy, cites numerous examples of the need to consider environmental conditions as an element of stability and security. The strategy states: "Regional or civil conflicts, hastened or exacerbated by environmental stress, could involve the United States in costly and hazardous military interventions, peacekeeping, or humanitarian operations." (NSSTS 1996)

The Gore-Chernomyrdin Commission with Russia, the Gore-Mbeki Commission with South Africa, and the new Gore-Kuchma Commission with the Ukraine all include a strong focus on energy, the environment, and other health and safety issues. And, of course, the administration's commitment to strengthening the Framework Convention

on Climate Change is a primary example of the importance we associate with environmental issues.

Earlier this year, Secretary of State Warren Christopher instructed State Department officials to incorporate environmental concerns as a core element of U.S. foreign policy. In a speech delivered in April 1996 at Stanford University, Secretary Christopher said: "The environment has a profound impact on our national interests in two ways: First, environmental forces transcend borders and oceans to threaten directly the health, prosperity, and jobs of American citizens. Second, addressing national resources is frequently critical to achieving political and economic stability, and to pursuing our strategic goals around the world."(Christopher 1996)

The Defense Department also is actively engaged in promoting the environment as an element of U.S. security, as evidenced by Secretary Perry's "preventive defense" policy. As articulated by Secretary Perry, preventive defense means enhancing "the conditions which support peace, making war less likely and deterrence unnecessary." And further from Secretary Perry: "By sharing what we have learned with other militaries and civilian environmental authorities, we can invest in the kind of defense activities that help to create the conditions for lasting peace. A healthy environment is a seminal part of the picture, as environmental protection supports quality of life and economic growth all over the world." (Perry 1996)

As we move into the transition to a new team of leaders in the second Clinton administration, we hope to build an even greater awareness of, and *response* to environmental security.

The federal role in addressing environmental security

One of the advantages we hold over previous generations is our advanced capability to predict, understand, and, in many cases, address environmental conditions through science and technology. Scientific and technological advances, along with our accumulated experience in dealing with environmental problems, give us many of the tools to "fix" current problems and prevent future troubles.

If we do not act now, however, we may lose the opportunity to play a pivotal role in influencing the decisions being made by developing countries. The *Economist* magazine recently forecast that in the year 2020:

- Nine of the 15 largest economies on the planet will be what we now call "developing countries."
- Developing countries will represent 62% of the global gross national product GNP.
- Indonesia will replace France as the fifth largest economy in the world.
- India will replace Germany as the fourth largest economy in the world.
- China may well replace the United States as the largest economy on the globe.

If we want to maximize the effect of our leadership in creating positive environmental conditions for the future, we need to act now on a continuum of environmental security issues.

Solving problems. The United States should act internationally to solve critical near-term problems that require immediate attention to prevent potential crises. Take,

for example, the unsafe operation of nuclear facilities and handling of nuclear materials. Left unaddressed, these problems could cause significant loss of life, long-term radioactive contamination, and even armed conflict in the near future. The United States has the experience and technical capability to aid countries in addressing these very critical problems.

Building capacity. The United States should help other countries develop their own tools and capabilities—both political and technical—to *prevent future stresses in their environment.* While the immediate environmental threats may capture the headlines, the more challenging and strategic job is to work to prevent what we expect to be the serious problems of the future: for example, the rising demand for natural resources, increasing waste output, and the prospect of global climate change are all exacerbated by exploding populations and subsequent increased consumption.

These challenges will not be met by "parachuting" technologies into a situation. The quick fix won't work. As in the old "teach a man to fish" parable, we need to work toward longer term and lasting solutions. Political commitment, social awareness, and acceptance, *and* technical infrastructure *in* the countries and regions affected are necessary elements if we are to be successful. We must approach the host governments and other organizations in developing countries as our partners in working for a better future.

Providing direction. As we all know, the industrial, economic, and political development of rapidly growing countries could go a number of different directions. In most cases, the path of least resistance for development for the near-term carries the greatest environmental cost for the future. Again, U.S. leadership is crucial. Environmental values should be clear in our aid and assistance policies and in our engagement at all levels with foreign countries.

One example of solidarity for the administration's position on the important connection between the environment and U.S. security interests is the agreement to cooperate on international environmental security projects signed last July 3 by the Department of Energy, the Department of Defense, and the Environmental Protection Agency. This "memorandum of understanding," or MOU was signed by Energy Secretary Hazel O'Leary, Defense Secretary William Perry, and EPA Administrator Carole Ann Browner, thereby highlighting the importance of environmental security at the highest levels of the U.S. government. (Department of Defense 1996)

DOE Secretary O'Leary said of the agreement:

> Clean energy and environmentally friendly technologies are among the keys to ensuring a safer, more secure future. By pooling resources we can make a greater contribution to environmental quality, economic growth, and sustainable development.

EPA Administrator Browner added:

> The agreement recognizes that protection of public health and the environment have become an important part of our national security. Environmental protection and economic growth go hand in hand, and both are essential to U.S. long-range interests.

And DoD Secretary Perry concluded:

> There is enormous benefit to having a strong working relationship among DoD, DOE, and EPA. Collaboration among these agencies demonstrates to other governments how the civilian and military sides of government can work together and how our different objectives can be compatibly met.

The practical purpose of the MOU is to provide a framework for joint interagency environmental security activities abroad. Reduced environmental stresses, improved conditions for regional and national stability, and partnerships with organizations in the host countries are the primary goals.

In addition to DOE, DoD, and EPA, close coordination with the State Department is ongoing; other federal agencies are expected to participate in the future.

Projects will include both military and civilian work to build in-country capability, including scientific research and development, technology diffusion, regulatory reform, training, and environmental management.

To this collaboration the Department of Energy brings scientific and technical experience in both the national security and environmental areas. The Defense Department brings a comprehensive network of military contacts around the world as well as tremendous experience with military base cleanup. The Environmental Protection Agency has expertise in the development of both regional and national environmental action plans with civilian authorities in the affected regions.

It is important to note that all three of our agencies are independently involved in numerous international projects right now. The point of the MOU is not to add another layer of bureaucracy to international projects, nor to replace all our efforts as individual agencies with joint projects. Rather, the point of the MOU is to identify those cases where our complimentary abilities and resources enhance our individual agencies' capabilities.

A primary example of such synergistic work is the Arctic Military Environmental Cooperation (AMEC), which is based on an official agreement between the United States, Norway, and Russia. AMEC focuses on military-to-military cooperation related to Russian navy nuclear spent fuel and associated facilities in the Arctic. Projects under the AMEC are designed to address the safe storage and transport of nuclear spent fuel, the treatment of low- and high-level radioactive waste; remediation for contaminated sites, and training for personnel involved in handling radioactive materials.

Although the Defense Department has the lead for the United States, DOE and EPA have been integrally involved in shaping the projects that are planned under the trilateral agreement. The implementation of these projects will also be a joint effort. Neither DoD, DOE, nor EPA has the mandate, resources, contacts, or technical expertise to handle these projects alone. Working together, we can accomplish important tasks that would be beyond the reach of any one agency working independently.

Adding value to the U.S. environmental security role

Given that environmental security represents the intersection of environmental and security issues, DOE is poised to be a major contributor on this issue. The history of

the department is one of parallel investments in both national security, energy, and environmental capabilities.

The "glue" that holds the department together is science and technology. National security research and development has produced the nuclear science needed for nuclear deterrence. In conventional energy and environmental technology, our research investments have led to breakthroughs and advancements that have increased efficiency, decreased pollution, and greatly improved remediation practices. In addition, the DOE is the U.S. source of high energy, nuclear, and fusion physics experiments, and is a strong contributor to advances in bioscience. Our laboratory system has a proud history of scientific achievements in a wide array of disciplines unmatched in the world.

Examples of specific capabilities that may relate directly to international environmental security projects include the laboratories':

- Experience in developing and training personnel on emergency response procedures
- Experience in the safe handling of nuclear materials and the decommissioning of nuclear facilities
- Technologies for the safe transport and storage of radioactive waste
- Technologies for the remediation of radioactive and other hazardous wastes
- Assessment, characterization, and monitoring skills
- Technologies to upgrade or replace conventional energy production and use
- Ability to process and manage large volumes of data

No other agency has the dual perspective of basic science and engineering, or the variety of scientific and technical resources that exists at the Department of Energy. Environmental security is well within the scope of our mission and multidisciplinary capabilities.

How we should proceed

A working group has been formed to communicate and consult on the department's own, internal environmental security initiative. We have produced a framework document that outlines the goals, criteria, and priorities for international engagement, and we are developing an inventory of capabilities and ongoing projects abroad. This framework is consistent with U.S. foreign policy and serves our commitments previously outlined as critical elements of the U.S. role on environmental security—namely, solving problems, building capacity, and providing leadership.

The department's goals as stated in the framework are as follows:

- To establish environmental security as a major element of international program efforts
- To serve U.S. national interests through cooperative efforts to prevent or reverse global environmental degradation
- To encourage and assist foreign partners in the establishment of policies and commitments to mitigate and prevent negative environmental conditions

The framework criteria, which will serve as a filter to identify those projects that fit under our environmental security initiative, are:

- Failure to address the existing environmental conditions is likely to result in economic and political instability, life-threatening health effects, and/or possible international conflict
- Existing or potentially threatening environmental conditions may be positively addressed using available expertise and proven technology
- Private sector and local support for long-term solutions may be more forthcoming as a result of project partnerships.
- The United States has significant and ongoing interests in the region

Our priorities for engagement will be driven by:

- The linkage of international partnerships to "projects-in-place"
- The willingness of government and private sector organizations in the affected region to lead and/or participate
- The potential for accomplishing specific goals and objectives associated with environmental conditions
- The potential for positive and significant impact on the political and economic infrastructure of a country or region

In addition to the framework for decision making, we have also identified four broad categories of response which integrate DOE capabilities and interests. These are:

Analysis, research and testing: This category refers to the application of scientific methods to determine the nature and relative impacts of environmental conditions. More specific activities may include:

- Global, regional, and site-specific modeling
- Site characterization
- Emissions estimates
- Dosimetry studies
- Joint research and testing

Hazardous/radioactive waste remediation: This category refers to the application of scientific and technical methods to clean up or reverse the environmental consequences of pollution—including the radioactive pollution that reflects the legacy of the Cold War. Specific activities include:

- Hazardous waste handling, transport, and disposition
- Bioremediation and other cleanup techniques

Nuclear safety: This category of response encompasses the application of scientific and operational methods to improve the safety of existing nuclear facilities and the handling of nuclear materials. Again, specific examples are:

- Development of rational standards for categorization and operation
- Decommissioning and decontamination of facilities
- Safe handling of nuclear materials

Infrastructure development: This is a very broad category that refers to the application of scientific, technical and operational expertise to the development of capabilities for the production, distribution and use of energy and water, and the efficient use of natural resources. Activities in this category may include:

- Power generation, both baseload and supplemental
- Technologies for the efficient distribution and use of energy

- Water treatment and watershed management
- Wastewater treatment
- Development of environmental standards, laws, and regulations.

These activities draw from the capabilities of every DOE research, development, and operational program.

The next steps

Perhaps the most important step we can take is to lead by example. We are working to develop "Joint Action Plans" under the interagency MOU for activities in the Baltics and Poland. We hope to have projects up and running in these areas in the next six months. We expect these projects to focus on demonstrating U.S. technologies and training of local government and industry personnel to handle local and regional concerns.

The Gore-Kuchma Commission offers opportunities to address environmental security issues in the Ukraine. We will, of course, continue our important cooperation in Russia. Moreover, within the next year, I believe we will move on to some of the challenges presented in Latin America and Asia.

Our ability to successfully lead international projects depends on continuing support at home. In Washington, we will be working with the Administration and congressional leaders to raise awareness on the important issues encompassed by environmental security. Together, we can forge a vision for action that serves U.S. foreign policy, national security policy, science and technology policy, and economic policy interests while making the environment cleaner. If we are successful, we will also serve the global community by contributing to the conditions necessary for peace and prosperity.

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